

Combined Target Analyte List for MCP Analytical Methods

(Revised May 2005)

The individual Target Analyte Lists that have been developed for all multiple-analyte MCP Analytical Methods have been included in this Combined Target Analyte List. Compounds included in the method-specific Target Analyte Lists are potential contaminants that are readily-analyzable by the subject method and have MCP Method 1 Groundwater/Soil Standards as described in 310 CMR 40.0974 (with the exception of four TNT metabolites determined by SW-846 Method 8330). The combined list was developed to provide a single reference source for analytes that are commonly encountered at disposal sites with a cross-reference to the appropriate MCP Analytical Method(s). The Combined Target Analyte List will be updated as additional methods are added to or method-specific Target Analyte Lists are revised in the Compendium of Quality Assurance and Quality Control Requirements and Performance Standards for Selected Analytical Methods (<http://www.mass.gov/dep/bwsc/files/data/qaqcdocs.htm#anli>).

The MCP Method 1 Groundwater/Soil Standards are described in 310 CMR 40.0974(2), Table 1, and are used to evaluate the risk of harm posed by oil or hazardous materials at a disposal site. This list of groundwater/soil standards was developed by the Department and takes into account a defined set of conservative potential exposure pathways likely to be encountered at most disposal sites. Method 1 Standards have been developed by the Department for over one hundred organic and inorganic contaminants that are commonly encountered at disposal sites. The MCP Method 1 Groundwater/Soil Standards list is continually reviewed and updated by the Department. When compounds are added to the MCP Method 1 Groundwater/Soil Standards list that are suitable for analysis by the MCP Analytical Methods the Combined Target Analyte List will be updated accordingly.

Method-specific MCP Target Analyte Lists specify the minimum number of analytes to be reported to assure “presumptive certainty” of compliance with the acceptable standard of care for MCP decision making for the assessment of disposal sites with an indeterminate characterization or history. These assessment activities include but are not limited to:

- Initial Site Investigation Activities performed in accordance with 310 CMR 40.0405(1);
- Phase I Initial Site Investigation Activities performed in accordance with 310 CMR 40.0480 through 40.0483;
- Phase II Comprehensive Site Investigation Activities performed in accordance with 310 CMR 40.0830; and
- Phase III Identification and Evaluation of Response Action Alternatives performed in accordance with 310 CMR 40.0850 through 310 CMR 40.0860.

Notwithstanding, if in the professional judgment of the LSP and based upon the specific conditions and/or characteristics of a disposal site, a method-specific Target Analyte List may be modified at the discretion of the LSP if these data requirements are deemed excessive, unnecessary or inappropriate. However, any modification of the analyte list should be documented by the LSP.

It should be noted that if site-specific contaminants of concern are identified that are not included on a method-specific Target Analyte List, then these additional analytes must also be incorporated into the Sampling Plan and analytical program with appropriate calibration and QA/QC verification. In every case, the Reporting Limit (based on the concentration of the lowest calibration standard) for each contaminant of concern must be less than or equal to the MCP standards or criteria that the contaminant concentrations are being compared to (i.e., Method 1 Standards, risk assessment, background determination, etc.). In some cases, this may require analytical modifications, such as increased sampling weight or volume, to increase sensitivity. All such modifications should be reported by the LSP.

Target Analyte	Analyte Type	CASRN	MCP-SW846 Method
Acenaphthene	Semi-Volatile	83329	8270C, EPH
Acenaphthylene	Semi-Volatile	208968	8270C, EPH
Acetone	Volatile	67641	8260B
Acetophenone	Semi-Volatile	98862	8270C
Aldrin	Chlorinated Pesticide	309002	8081A
Aliphatic Hydrocarbons C ₁₉ -C ₃₆	Semi-Volatile	n/a	EPH
Aliphatic Hydrocarbons C ₅ -C ₈	Volatile	n/a	VPH
Aliphatic Hydrocarbons C ₉ -C ₁₂	Volatile	n/a	VPH
Aliphatic Hydrocarbons C ₉ -C ₁₈	Semi-Volatile	n/a	EPH
Amino-2,6-dinitrotoluene- 4 (4 - Am - DNT)	Nitroaromatics & Nitramines	1946510	8330
Amino-4,6-dinitrotoluene - 2 (2 - Am - DNT)	Nitroaromatics & Nitramines	35572782	8330
Amyl Methyl Ether (TAME)	Volatile	994058	8260B
Aniline	Semi-Volatile	62533	8270C
Anthracene	Semi-Volatile	120127	8270C, EPH
Antimony	Metal	7440360	6010B, 7000
Aroclor 1016	PCB	12674112	8082
Aroclor 1221	PCB	11104282	8082
Aroclor 1232	PCB	11141165	8082
Aroclor 1242	PCB	53469219	8082
Aroclor 1248	PCB	12672296	8082
Aroclor 1254	PCB	11097691	8082
Aroclor 1260	PCB	11096825	8082
Aromatic Hydrocarbons C ₉ -C ₁₀	Volatile/Semi-Volatile	n/a	VPH, EPH
Arsenic	Metal	7440382	6010B, 7000
Azobenzene	Semi-Volatile	103333	8270C
Barium	Metal	7440393	6010B, 7000
Benz (a)anthracene	Semi-Volatile	56553	8270C, EPH
Benzene	Volatile	71432	8260B, 8021B, VPH
Benzo(a)pyrene	Semi-Volatile	50328	8270C, EPH
Benzo(b)fluoranthene	Semi-Volatile	205992	8270C, EPH
Benzo(g,h,i)perylene	Semi-Volatile	191242	8270C, EPH

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Benzo(k)fluoranthene	Semi-Volatile	207089	8270C, EPH
Benzoic acid	Semi-Volatile	65850	8270C
Beryllium	Metal	7440417	6010B, 7000
BHC, α -	Chlorinated Pesticide	319846	8081A
BHC, β	Chlorinated Pesticide	319857	8081A
BHC, γ - (Lindane) -	Chlorinated Pesticide	58899	8081A
BHC, δ -	Chlorinated Pesticide	319868	8081A
bis(2-Chloroethoxy)methane	Semi-Volatile	111911	8270C
bis(2-Chloroethyl)ether	Semi-Volatile	111444	8270C
bis(2-Chloroisopropyl)ether	Semi-Volatile	108601	8270C, 8021B
bis(2-Ethylhexyl) phthalate	Semi-Volatile	117817	8270C
Bromobenzene	Volatile	108861	8260B
Bromochloromethane	Volatile	74975	8260B
Bromodichloromethane	Volatile	75274	8260B, 8021B
Bromoform	Volatile	75252	8260B, 8021B
Bromomethane	Volatile	74839	8260B
Bromophenyl phenyl ether - 4	Semi-Volatile	101553	8270C
Butylbenzene, n-	Volatile	104518	8260B
Butylbenzene, sec-	Volatile	135988	8260B
Butylbenzene, tert-	Volatile	98066	8260B
Cadmium	Metal	7440439	6010B, 7000
Carbon Disulfide	Volatile	75150	8260B
Carbon Tetrachloride	Volatile	56235	8260B, 8021B
Chlordane (nos), multi-component mixture	Chlorinated Pesticide	57749	8081A
Chloroaniline, 4-	Semi-Volatile	106478	8270C
Chlorobenzene	Volatile	108907	8260B, 8021B
Chlorodibromomethane	Volatile	124481	8260B, 8021B
Chloroethane	Volatile	75003	8260B, 8021B
Chloroform	Volatile	67663	8260B, 8021B
Chloromethane	Volatile	74873	8260B, 8021B
Chlorophenol, 2-	Semi-Volatile	95578	8270C
Chlorotoluene, 2-	Volatile	95498	8260B, 8021B
Chlorotoluene, 4-	Volatile	106434	8260B, 8021B
Chromium (Total)	Metal	7440473	6010B
Chrysene	Semi-Volatile	218019	8270C, EPH
Cyanide, Total	Miscellaneous Wet Chemical	57125	9014
Cyanide, Physiologically Available (PAC)	Miscellaneous Wet Chemical	N/A	9014
Dalapon	Herbicide	75990	8151A
DDD, 4,4'-	Chlorinated Pesticide	72548	8081A
DDE, 4,4'-	Chlorinated Pesticide	72559	8081A
DDT, 4,4'-	Chlorinated Pesticide	50293	8081A
Diamino-4-nitrotoluene - 2,6 (2,6-Dam-4NT)	Nitroaromatics & Nitramines	59299753	8330
Diamino-6-nitrotoluene-2,4 (2,4-Dam-6NT)	Nitroaromatics & Nitramines	6629294	8330
Dibenz(a,h)anthracene	Semi-Volatile	53703	8270C, EPH
Dibenzofuran	Semi-Volatile	132649	8270C
Dibromochloromethane	Volatile	124481	8021B
Dibromoethane, 1,2- (EDB), Ethylene Dibromide	Volatile	106934	8260B, 8021B
Dibromomethane	Volatile	74953	8260B
Dichloro-6-methoxybenzoic acid, 2,5- (Dicamba)	Herbicide	1918009	8151A
Dichlorobenzene, 1,2- (o-DCB)	Volatile/Semi-Volatile	95501	8260B, 8270C, 8021B
Dichlorobenzene, 1,3- (m-DCB)	Volatile/Semi-Volatile	541731	8260B, 8270C, 8021B

Target Analyte	Analyte Type	CASRN	MCP-SW846 Method
Dichlorobenzene, 1,4- (p-DCB)	Volatile/Semi-Volatile	106467	8260B, 8270C, 8021B
Dichlorobenzidine, 3,3'-	Semi-Volatile	91941	8270C
Dichlorodifluoromethane (Freon 12)	Volatile	75718	8260B, 8021B
Dichloroethane, 1,1-	Volatile	75343	8260B, 8021B
Dichloroethane 1,2-	Volatile	107062	8260B, 8021B
Dichloroethylene, cis-1,2-	Volatile	156592	8260B, 8021B
Dichloroethylene, trans-1,2-	Volatile	156605	8260B, 8021B
Dichloroethylene, 1,1-	Volatile	75354	8260B, 8021B
Dichlorophenol, 2,4-	Semi-Volatile	120832	8270C
Dichlorophenoxy acetic acid (2,4-D)	Herbicide	94757	8151A
Dichloroprop	Herbicide	120365	8151A
Dichloropropane, 1,2-	Volatile	78875	8260B, 8021B
Dichloropropane, 1,3-	Volatile	142289	8260B, 8021B
Dichloropropane, 2,2-	Volatile	594207	8260B, 8021B
Dichloropropene, 1,1 -	Volatile	563586	8260B
Dichloropropene, cis-1,3-	Volatile	10061016	8260B, 8021B
Dichloropropene, trans-1,3-	Volatile	10061015	8260B, 8021B
Dieldrin	Chlorinated Pesticide	60571	8081A
Diethyl Ether	Volatile	60297	8260B
Diethyl phthalate	Semi-Volatile	84662	8270C
Diisopropyl Ether (DIPE)	Volatile	108203	8260B
Dimethyl phthalate	Semi-Volatile	131113	8270C
Dimethylphenol, 2,4-	Semi-Volatile	105679	8270C
Dinitrobenzene, 1,3 – (DNB)	Nitroaromatics & Nitramines	99650	8330
Dinitrophenol, 2,4-	Semi-Volatile	51285	8270C
Dinitrotoluene, 2,4- (2,4 - DNT)	Semi-Volatile	121142	8270C, 8330
Dinitrotoluene, 2,6- (2,6 - DNT)	Semi-Volatile	606202	8270C, 8330
Dinoseb	Herbicide	88857	8151A
Dioxane	Volatile	123911	8260B
Endosulfan I	Chlorinated Pesticide	959988	8081A
Endosulfan II	Chlorinated Pesticide	33213659	8081A
Endrin	Chlorinated Pesticide	72208	8081A
Endrin Sulfate	Chlorinated Pesticide	72208	8081A
Ethylbenzene	Volatile	100414	8260B, 8021B, VPH
Ethyl tert-Butyl Ether (ETBE)	Volatile	637923	8260B
Fluoranthene	Semi-Volatile	206440	8270C, EPH
Fluorene	Semi-Volatile	86737	8270C, EPH
Heptachlor	Chlorinated Pesticide	76448	8081A
Heptachlor Epoxide	Chlorinated Pesticide	1024573	8081A
Hexachlorobenzene	Semi-Volatile/Pesticide	118741	8270C, 8081A
Hexachlorobutadiene	Volatile/Semi-Volatile	87683	8260B, 8270C, 8021B
Hexachlorocyclopentadiene	Semi-Volatile	77474	8270C
Hexachloroethane	Semi-Volatile	67721	8270C
Hexanone, 2- (MNBK)	Volatile	591786	8260B
HMX,	Nitroaromatics & Nitramines	2691410	8330
Indeno(1,2,3-c,d)pyrene	Semi-Volatile	193395	8270C, EPH
Isophorone	Semi-Volatile	78591	8270C
Isopropylbenzene (Cumene)	Volatile	98828	8260B
Isopropyltoluene, p-	Volatile	99876	8260B
Lead	Metal	7439921	6010B, 7000
MCPP	Herbicide	93652	8151A

Target Analyte	Analyte Type	CASRN	MCP-SW846 Method
Methoxychlor	Chlorinated Pesticide	72435	8081A
Methyl-4-chlorophenoxy, 2- acetic acid (MCPA)	Herbicide	94746	8151A
Methyl Ethyl Ketone (MEK)	Volatile	78933	8260B
Methyl Isobutyl Ketone (MIBK)	Volatile	108101	8260B
Methyl Tertiary Butyl Ether (MtBE)	Volatile	1634044	8260B, VPH
Methylene Chloride	Volatile	75092	8260B, 8021B
Methylnaphthalene, 2-	Semi-Volatile	91576	8270C, EPH
Methylphenol, 2-	Semi-Volatile	95487	8270C
Methylphenol, 3-	Semi-Volatile	108394	8270C
Methylphenol, 4-	Semi-Volatile	106445	8270C
Naphthalene	Volatile/Semi-Volatile	91203	8260B, 8270C, 8021B, EPH, VPH
Nickel	Metal	7440020	6010B, 7000
Nitrobenzene (NB)	Semi-Volatile	98953	8270C, 8330
Nitrophenol, 4-	Semi-Volatile	100027	8270C
Nitrotoluene, - 2- (2 - NT)	Nitroaromatics & Nitramines	88722	8330
Nitrotoluene, 3- (3 - NT)	Nitroaromatics & Nitramines	99081	8330
Nitrotoluene, 4- (4 - NT)	Nitroaromatics & Nitramines	99990	8330
N-Nitrosodi-n-propylamine	Semi-Volatile	621647	8270C
N-Nitrosodiphenylamine	Semi-Volatile	86306	8270C
Pentachlorophenol	Semi-Volatile/Herbicide	87865	8270C, 8151A
Phenanthrene	Semi-Volatile	85018	8270C, EPH
Phenol	Semi-Volatile	108952	8270C
Phosphorous	Metal	7723140	7000
Isopropyltoluene, p-	Volatile	99876	8260B
Propylbenzene, n-	Volatile	103651	8260B
Pyrene	Semi-Volatile	129000	8270C, EPH
Pyridine	Semi-Volatile	110861	8270C
RDX (Cyclonite)	Nitroaromatics & Nitramines	121824	8330
Selenium	Metal	7782492	6010B, 7000
Silver	Metal	7440224	6010B, 7000
Styrene	Volatile	100425	8260B, 8021B
Tert-Butylbenzene	Volatile	98066	8260B, 8021B
Tetrachloroethane, 1,1,1,2-	Volatile	630206	8260B, 8021B
Tetrachloroethane, 1,1,2,2-	Volatile	79345	8260B, 8021B
Tetrachloroethylene	Volatile	127184	8260B, 8021B
Tetrahydrofuran (THF)	Volatile	109999	8260B
Tetryl	Nitroaromatics & Nitramines	479458	8330
Thallium	Metal	7440280	6010B, 7000
Toluene	Volatile	108883	8260B, 8021B, VPH
Trichlorobenzene, 1,2,4-	Volatile/Semi-Volatile	120821	8260B, 8270C, 8021B
Trichlorobenzene, 1,2,3-	Volatile	120821	8260B
Trichloroethane, 1,1,1-	Volatile	71556	8260B, 8021B
Trichloroethane, 1,1,2-	Volatile	79005	8260B, 8021B
Trichloroethylene	Volatile	79016	8260B, 8021B
Trichlorofluoromethane (Freon 11)	Volatile	75694	8260B
Trichlorophenol, 2,4,5-	Semi-Volatile	95954	8270C
Trichlorophenol, 2,4,6-	Semi-Volatile	88062	8270C
Trichlorophenoxy acetic acid (2,4,5-T)	Herbicide	93765	8151A
Trichlorophenoxy propionic acid (2,4,5-TP, Silvex)	Herbicide	93721	8151A
Trichloropropane, 1,2,3-	Volatile	96184	8260B

Target Analyte	Analyte Type	CASRN	MCP-SW846 Method
Trimethylbenzene, 1,2,4-	Volatile	95636	8260B
Trimethylbenzene, 1,3,5-	Volatile	108678	8260B
Trinitrobenzene (1,3,5 - TNB)	Nitroaromatics & Nitramines	99354	8330
Trinitrotoluene, 2,4,6- (TNT)	Nitroaromatics & Nitramines	118967	8330
Vanadium	Metal	7440622	6010B, 7000
Vinyl Chloride	Volatile	75014	8260B, 8021B
Xylene, m-	Volatile	108383	8260B, 8021B, VPH
Xylene, o-	Volatile	95476	8260B, 8021B, VPH
Xylene, p-	Volatile	106423	8260B, 8021B, VPH
Zinc	Metal	7440666	6010B, 7000